

THE ZOOLOGIST

No. 704.—February, 1900.

“HOW DOES THE NEW-BORN KANGAROO GET INTO THE MOTHER'S POUCH?”

BY D. LE SOUËF, C.M.Z.S., &c. ; Asst. Dir. Zoological Gardens, Melbourne.

PLATE I.

HAVING seen an article under the above heading in a recent number of 'The Zoologist' (1899, p. 368), in which it was stated that there is evidently much confusion on this interesting question, I thought it would be a help to state what has been observed in a wild specimen of the Grey Kangaroo (*Macropus giganteus*). When the young one is ready to be born, the mother sits down on the ground, resting on the upper portion of the base of her tail, and with that appendage resting level on the ground in front of her (Plate I., fig. 1, upper figure) ; she then holds her pouch open with her two fore-paws, and, as the helpless mite is born, it rests on the soft fur of the under side of the tail. The mother immediately transfers it to her pouch with her lips only, and evidently with great care attaches it to the nipple. The mouth of the young one is apparently only a round hole, and it as yet has no power of suction ; but the nipple is of a peculiar shape, with the point hard, and the mother is thereby enabled to insert it into the mouth of the young one. She then holds it in position while she forces the milk into the nipple, which thereby swells out and holds the young one on ; but if, after being once firmly

attached, it is pulled off, it cannot be replaced, even by the mother, for the end of the nipple now being flaccid instead of hard cannot well be inserted into the mouth of the little one.

The illustrations show the fœtus about two days before birth (Plate I. fig. 2); also the young one about life-size, just as it had been born, but not transfixed to the nipple (Plate I. fig. 3); and the nipple with the hardened point just ready for the young one (Plate I. fig. 3). It will be noticed how immature the little one is, and also that its fore legs are much larger than its hind ones. I have the specimens here shown in spirits. It has not yet been proved, as far as I am aware of, how long after birth the young one is able to draw nourishment for itself—probably three months.



LAND BIRDS AT SEA.

BY SURGEON K. HURLSTONE JONES, M.B., R.N., F.L.S.

No one who has at certain seasons of the year made anything that can be called a voyage at sea can have failed to observe the remarkable fact that often, when far away from land, birds other than sea birds come on board the ship. These birds are almost all of them migrants, and it is mainly during the spring and autumn months that they are observed to frequent the hospitable refuge that a ship at sea offers them.

Most of these birds are, I believe, such as have by some accident, often doubtless stress of weather, lost their way and their companions in migration at the same time, and, wandering over the waste of water, gladly take advantage of any passing ship for the purpose of resting. Some few may perhaps have been blown out to sea by gales of wind, or even chased from the land by birds of prey. Often the wanderers have evidently lost their bearings, for they hang about the ship much longer than is actually necessary for the purpose of resting, and indeed generally, I think, until nearing the land.

In my own limited experience the birds have come on board either singly or in twos and threes. In the following notes are jotted down the occurrence on various occasions and in different localities of a few such birds. They are not very many, and, I fear, they are not very important. They were made partly whilst I was surgeon to the steamship 'Anselm,' of Liverpool, in 1897, and partly during my service in H.M.S. 'Repulse,' of the Channel Squadron. In the 'Anselm' I sailed from Liverpool to Hamburg, and thence to Havre, Lisbon, Madeira, and Brazil. In the Channel Squadron most of my time at sea has been spent cruising off the coasts of Spain and Portugal, though I have also been to Sardinia in the Mediterranean, besides much cruising in British waters. The first notes I have, however, of land birds at sea are curiously not of their actual occurrence on board the ship.

Cypselus apus.—On May 9th, whilst steaming up the English Channel in very fine weather, at about forty miles from south coast of England, I noticed several parties of Swifts. These birds were evidently migrating, for they flew straight ahead, and were obviously making a "bee-line" for the English coast. They were not, however, flying at any great height.

Hirundo rustica.—I noticed one Swallow also flying in the same way, and in the same direction.

On May 10th, whilst traversing the North Sea between Dover and the mouth of the Elbe, with coast of Holland just in sight, a Pipit (*Anthus* sp.) came on board.

Corvus cornix.—At dusk on the same day, when about midway between Heligoland and the German coast, a Hooded Crow alighted in the rigging of the foremast. After dark the third officer climbed up and caught this bird, which I should have otherwise not have been able to identify.

Saxicola œnanthe.—On May 17th, when about half-way between the mouth of the Elbe and Dover on the return journey, a Wheatear came on board of us, evidently very much tired.

Turtur communis and *Anthus pratensis*.—On May 21st, at the entrance to the Bay of Biscay, but a long way from Ushant, a Turtle-Dove, a Meadow-Pipit, and a Swallow came on board the ship, and remained all day. On May 22nd, being now about two-thirds of the way across the Bay, a second Turtle-Dove and a second Swallow joined those mentioned above, and later a Sand Martin (*Cotile riparia*) also put in an appearance. They all remained by the ship, and at dusk the hands going aloft drove the Turtle-Doves from their roosting-place on the fore main topsail-yard, and one of them, passing over the funnel, became suffocated, and was engulfed in it. On May 23rd, when we neared the Portuguese coast, all the birds left us.

The above are the few notes I was able to make of land birds coming on board the ship whilst I was in the steamship 'Anselm.'

Whilst serving in H.M.S. 'Repulse,' I have, I fear, not made very many notes, and for this there are several reasons. In the first place, this ship is one of a fleet, and when there are fourteen ships together, as is generally the case, there are obviously thirteen chances to one against a bird alighting on board of us. In the second place, this is a very large ship—one of the biggest

battle-ships afloat—and consequently it is very much easier to miss a bird which alights on board so large a vessel than it is to do so in a smaller craft like the 'Anselm.'

Upupa epops.—On March 15th, 1899, when about one hundred miles west of Cape Finisterre, at five o'clock in the evening, a Hoopoe came on board of us, but shortly dropped astern and disappeared. This happened in very fine weather.

Falco tinnunculus.—On March 23rd, 1899, when about sixty miles from the north-west coast of Spain, in dull cloudy weather, a Kestrel flew on board, and remained the rest of the day. At night it managed to get into one of the canvas steaming covers round the fore-topmast, where a boy made an ineffectual attempt to catch it.

Daulias luscinia.—On April 29th, being then about one hundred and sixty miles W.S.W. of the southern end of Sardinia, two Turtle-Doves, a Nightingale, and another small bird which I could not get a good view of, came on board the ship; but all shortly left us for some other member of the squadron.

Sturnus vulgaris.—On Oct. 26th, 1899, whilst proceeding towards Ushant from Scilly, and about one-third nearer the former, at 5 p.m. in foggy weather, a Starling alighted on board of us for a few minutes, and then departed in an eastwardly direction. On Oct. 27th, when about midway across the Bay of Biscay, a Swallow came and perched on our quarter-deck awning ridge rope at 9 a.m.

The above are my notes, lamentably scanty, but still a contribution to what is, I think, an interesting subject. I offer them without comment.

SOME REMARKS ON THE BIRDS SEEN IN THE
SOUTH-EAST PART OF THE MAINLAND OF
ORKNEY IN OCTOBER, 1899.

By N. F. TICEHURST, M.A., F.Z.S., &c.

HAVING last year to take my holiday somewhat later than usual, I took advantage of a pressing invitation to spend a fortnight with some friends in the parish of St. Mary's Holm, in the south-east part of the mainland of Orkney, for purposes of sport and natural history. As this part of the British Isles was to me quite new ground, and being somewhat out of the way, an account of the birds met with there may perhaps be of interest to those readers of 'The Zoologist' who are also unacquainted with that part of the world. Of course the first fortnight in October is not altogether a favourable time for observing bird-life, the weather being anything but settled; and, again, the autumn migrants have hardly begun to arrive, while the summer birds have for the most part left. Three facts, I think, strike one who comes here for the first time from the south, *viz.* the very few passerine birds seen; the number of species, and the quantity, of Waders, Gulls, and Wildfowl; and the tameness of almost all the birds. The last fact, I think, is accounted for by the careful preservation by the large landowners, under the Wild Birds Protection Acts, and the comparatively small number of people who shoot. In fact, the Gulls, &c., have increased so much of late years that the people are beginning to complain.

The ground for the most part is low and undulating, the higher parts being all moorland, the low ground being either grass or under cultivation; the crops grown being principally oats, potatoes, and roots. The coast is mostly low and rocky, rising to twenty or forty feet in places, with here and there a sandy or gravelly bay where a small burn enters the sea. At the south-eastern extremity is the rather higher point of Roseness, the cliffs of the east coast gradually rising in height from here, till

they reach their highest point in the fine cliffs of Galtic. The east coast is practically open to the North Sea, the only island beyond it being Coppinshay, which is several miles away.

To the south are the two small islands of Lambholm and Glims-holm,—the former only of which is inhabited,—separated from the mainland by a sound of about a mile in width, through which the tide ebbs and flows at a rate of six or seven knots. Beyond these two is a rather larger and higher island, which almost shuts the great island of South Ronaldshay from view. On a fine clear day the Pentland Skerries can be seen away to the south-east, and to the south-west some of the fine tops of the Caithness mountains are visible. On the north and north-west the near view is shut in by the rolling moorland of the mainland itself, the tops of the Harray hills and Orphir in the west mainland only being seen; while to the west the fine tops of Hoy are visible in the distance, when they are not wreathed in cloud and mist, which seems to be their usual condition at this time of the year.

BLACKBIRD (*Turdus merula*).—Several young birds were seen about the garden at Grømeshall, probably the members of a brood reared there, as none were seen elsewhere.

REDWING (*Turdus iliacus*).—A single bird was seen feeding among the rocks along the shore on Oct. 16th, and several others were noticed later on the same day on the moorland; they seemed to have just arrived, and to have come with the Jack-Snipes. Wind S.E.; north-west gales the two previous days.

FIELDFARE (*Turdus pilaris*).—One single bird was seen flying over on Oct. 14th, but the main flocks had not arrived by the 18th. They are said to come with the Woodcocks.

PIED WAGTAIL (*Motacilla lugubris*).—A pair of these birds had taken up their abode about the farm-buildings at Grømeshall, and were always to be seen there or along the loch-side; no others were observed.

MEADOW-PIPIT (*Anthus pratensis*).—Fairly common in the oat-stubbles, and small flocks of eight or ten were seen several times on the moors.

ROCK PIPIT (*Anthus obscurus*).—These birds appeared to be more numerous than the preceding; they were always to be seen along the shore, coming right up to the houses, but not penetrating far inland.

HOUSE-SPARROW (*Passer domesticus*).—Common about the houses and in the oat-stubbles near the farms; not going far from human habitations, and nowhere in large flocks.

TWITE (*Linota flavirostris*).—Small flocks of five to twelve were seen every day feeding on the stubbles, while occasionally a few were observed on the heather. I am not sufficiently acquainted with the note of this bird to distinguish it from that of the Linnet, but the slimness and greater comparative length of tail were conspicuous points of difference, while, with the glasses, the yellow beak could be made out. They were always very restless, and not nearly so tame as most of the other birds.

SNOW BUNTING (*Plectrophenax nivalis*).—A single bird of this species was seen on the moors on Oct. 10th; the main flocks had not arrived by the 18th.

SKY-LARK (*Alauda arvensis*).—Not very numerous; a few were generally to be seen in the grassy meadows, and around the edges of the loch; they seemed to prefer places that were somewhat wet and boggy to the drier parts of the meadows. A few were also seen on the "brakes" (pieces of enclosed moorland not yet cultivated), but none were noticed on the moorland itself.

STARLING (*Sturnus vulgaris*).—Every evening a vast flock of some thousands assembled at sunset on the few small trees in the garden at Groemeshall, quite blackening the almost bare branches. At the same time the ridges of the roofs and "crow-steps" of the gables would be similarly occupied, while a ring of birds were seated round the edge of every chimney-pot. A little later on, and apparently by signal, they would all rise in a great cloud, and go off to roost on the reeds in the loch. During the day there were comparatively few to be seen; one or two small flocks were always feeding round the loch edge, and a few were constantly about the farm-buildings, but where the vast numbers that assembled at evening came from was a mystery. The tameness of those about the house was absurd; when disturbed from the chicken-run they would fly on to the wall, and sit chattering within six or eight feet of one. The majority of the birds were immature, in a plumage that I had not noticed before, the head and neck being a dull russet-brown, while the rest of the body was in the speckled glossy plumage.

JACKDAW (*Corvus monedula*).—A large colony inhabited the

cliffs of Galtic at the east end of the island, feeding in the adjacent fields during the day, and returning to roost on the cliffs at sundown.

ROOK (*Corvus frugilegus*).—A few single birds were seen feeding in the meadows, and a few with the Jackdaws at Galtic. I was told that they breed here in the sea-cliffs, which seems probable, as there are practically no trees of any size in the island.

HOODED CROW (*Corvus cornix*).—A few pairs were seen about the shore and loch from time to time, but they were by no means numerous, and at the most I never saw more than three pairs in a day.

PEREGRINE (*Falco peregrinus*).—One bird was seen to leave the cliffs at Galtic on Oct. 6th; it was raining and misty at the time, and we lost sight of it out at sea. I could not find out definitely whether these birds bred in those particular cliffs or not, but was shown a very beautiful and deeply marked clutch taken on Hoy in 1897.

MERLIN (*Falco æsalon*).—A Merlin was seen pursuing a flock of Starlings over the Grømeshall loch on Oct. 4th, but, so long as we were able to watch it, was not successful in striking one; when it stooped they immediately bunched together, and twisted to one side. On Oct. 14th, when after Golden Plover, a Merlin appeared, and successfully struck down one of them, not thirty yards from where we were standing. On putting it up, it carried its prey off to a neighbouring stubble, and began to devour it there, the Plover weighing it down so much on its way that it was unable to rise more than a yard from the ground. One or two other birds were seen.

KESTREL (*Falco tinnunculus*).—Only four birds were seen altogether, two of which were adult males.

COMMON CORMORANT (*Phalacrocorax carbo*).—Quite a rare bird; one was put up from the shore on Oct. 14th, and one flew over the boat on Oct. 12th while we were fishing in the bay at St. Mary's Holm.

SHAG (*Phalacrocorax graculus*).—Very numerous, adult and immature birds being in almost equal numbers. Every morning, about 7.30, large numbers were fishing in the sound, forming in the distance a thick black line on the water. By 8.30 the

majority had left the water, and were digesting their meal and preening their feathers on the rocky point at the east end of the opposite island of Lambholm, which for the rest of the day would be black with them. Some were always to be seen close in shore, diving and fishing in quite shallow water, and allowing a near approach. On the cliffs at Galtic large numbers were sitting on the whitewashed ledges, from which the nests had already been blown away. On approaching in a boat we came close to them before they threw themselves from the ledges, and, flying close over our heads, flopped into the water within a few yards of us, there to dive away out of reach of the boat. On Oct. 14th the sound was black with Shags, all busy fishing over an area of several acres; they were coming and going all the morning from this particular area, and probably there was an unusually large shoal of Sillocks (yearling Coalfish) there; several thousand Shags must have been fishing at once. The natives are complaining that the supply of fish is falling off since the Wild Birds Protection Act came into force.

COMMON HERON (*Ardea cinerea*).—One or two were seen every day in the rocky pools along the shore at low tide.

BRENT GOOSE (*Bernicla brenta*).—Three Brent Geese were put up from a sheltered cove on Oct. 13th, while a north-west gale, which had lasted all the 12th, was still at its height. No Geese had been seen passing over this year up to Oct. 18th.

WILD DUCK (*Anas boschas*).—A few pairs inhabited the loch at Grømeshall, spending most of their time in the thick reeds, and flying out to sea when disturbed. On Oct. 13th, during the gale, a pair was seen in a sheltered pool on the shore.

WIGEON (*Mareca penelope*).—Not identified with certainty, but a pair of birds put up at dusk from a milldam on Oct. 16th were nearly certainly of this species.

POCHARD (*Fuligula ferina*).—Several small flocks were often seen off the reeds in the Grømeshall loch.

TUFTED DUCK (*Fuligula cristata*).—One Tufted drake was identified with certainty on the Grømeshall loch on Oct. 9th, and eight other birds with it were almost certainly immature birds of the same species.

SCAUP (*Fuligula marila*).—A pair of Scaup were on the loch at St. Mary's Holm the whole time I was there; they were very

tame, and I frequently watched them through the glasses sleeping on the water not twenty yards away. The drake had not yet attained full plumage, being still brown on the back, and with the white forehead, though its head and neck were nearly black.

EIDER (*Somateria mollissima*).—The Eider was by far the commonest Duck. Single pairs and small flocks of eight to fifteen could be seen at any time among the rocks busily feeding, and they were often noticed fighting and chasing one another, when some choice morsel was secured by one of them. So tame were they that when one went out on to the rocks close to them they only swam off a few yards into deeper water. All the drakes but one seen were fully adult birds in winter plumage, the exception being in partial eclipse, though evidently fast getting his full winter dress.

COMMON SCOTER (*Ædemia nigra*).—One pair only was seen off St. Mary's Holm on Oct. 4th.

VELVET SCOTER (*Ædemia fusca*).—Not seen on the mainland, but five birds of this species rose in front of the steamer on Oct. 18th, off Hoxa, in South Ronaldshay.

RED-BREASTED MERGANSER (*Mergus serrator*).—Two birds of this species were seen in the sound off Grøemeshall on Oct. 6th, three more farther east on Oct. 13th, and four more in the bay at St. Mary's Holm on Oct. 17th, near which place there was a nest this year. All were in the immature plumage, and, though I went quite close to them on the 13th and 17th, I could see no signs of any dark feathers coming on the necks of any.

ROCK-DOVE (*Columba livia*).—The Rock-Doves breed in considerable numbers in the caves at the east end of the mainland, and, though they are said to be less numerous than they were twenty years ago, there does not appear to be much danger of their extermination, the coast being very exposed, and quite unapproachable except in a flat calm, and even then they are by no means easy to shoot. The majority seemed to be pure bred birds, but it is evident that the tame birds interbreed with them in the caves, and the wild birds are said to visit the dovecots in the winter. One bird seen was nearly white, while another had many brown feathers in the wings and scapulars; and two others had white heads. At this time of the year they feed almost entirely on the stubbles, returning to the cliffs as soon as their crops are full.

RED GROUSE (*Lagopus scoticus*).—There are a very fair number of Grouse in the east mainland, and owing to efficient protection they are on the increase. Bags of fifteen to twenty-five brace are made over dogs in the early part of the season. Later on they become wilder, and after rough weather such as prevailed during the second week in October they pack, and are then practically unapproachable; the old cocks, which generally remain solitary, are very difficult to get near at any time, running in front of the dogs for hundreds of yards. At this time of the year, when the crops are being got in, the birds are mostly to be found on the fringe of the moor, not more than a hundred yards from the cultivated land, on to which they move at night to feed.

MOOR-HEN (*Gallinula chloropus*).—Only one was seen, viz. on the Grømeshall loch on Oct. 3rd.

COOT (*Fulica atra*).—A flock of twenty to twenty-five Coots live on the loch at Grømeshall, nesting in the reeds, and apparently staying there all the year round. One pair was seen on the loch at St. Mary's Holm.

GOLDEN PLOVER (*Charadrius pluvialis*).—Several flocks of from twenty to more than a hundred and fifty individuals were always to be found at particular places. At high water they were generally to be seen in the "parks" (meadows enclosed by stone walls), for certain of which they had a special predilection. At low water two or three special places on the ebb were sure finds for them, where they were almost invisible when standing still, so well did their golden plumage harmonise with the yellow seaweed and rocks. Several times I have crawled up to a particular piece of ebb, and carefully examined every part of it with glasses, without seeing anything, till presently a bird would stretch up a wing, and then suddenly some fifty or sixty birds would become visible. In calm weather they were remarkably tame, allowing a near approach in the open, if one did not walk directly at them; but in a gale of wind they were much wilder and very uneasy, continually flying up and settling again at some other spot for apparently no reason at all. At night the flocks appeared to split up, the birds going off in twos and threes to the "parks." Round the margin of the loch they associated with the Green Plover, and to a smaller degree with the Gulls.

LAPWING (*Vanellus vulgaris*).—Very common ; they are never shot at, and are consequently very tame.

RINGED PLOVER (*Ægialitis hiaticula*).—These delightful little birds were extremely numerous, and very tame. They were always to be seen feeding along the ebb in lots of a few individuals up to quite large flocks, very often associating with the Turnstones and Golden Plover. Had the weather been more propitious some very good photographs might have been obtained, as they never thought of flying away till one approached to within about four or five yards of them.

TURNSTONE (*Streptilas interpres*).—Also very common, and almost as tame as the preceding. In the first week of October only ones and twos were seen, generally with a few Ringed Plover; but as the month drew on they increased in numbers, and flocks of twenty or more individuals were quite common. They seem to be very active little birds, and there is no prettier sight than to have four or five of them within a few yards of you, busily turning over the seaweed, and literally throwing the pebbles about in their search for food. Several birds were seen with a few chestnut feathers on the shoulders, but most of them seemed to be immature.

OYSTERCATCHER (*Hæmatopus ostralegus*).—Common, in single pairs and small flocks, associating only with the Curlew, and almost as wild and wary as they ; whereas all the smaller shore birds were to be found close in shore, the Oystercatchers always kept well out on the rocks, where the sea was breaking, the spray often flying right over them. I noticed that they always stood head to wind.

COMMON SNIPE (*Gallinago cælestis*).—Very common on the moors, and, up till Oct. 10th, round the loch also, where large bags are sometimes made. After that date there were continuous gales from the north-west, with rain, and the birds all left the loch-side, probably passing on south, the numbers on the moors perhaps decreasing slightly about the same time ; but this is difficult to say.

JACK-SNIPE (*Gallinago gallinula*).—A solitary specimen was seen by the Grømeshall loch on Oct. 9th, and two others on the moors on Oct. 16th. It is probable that on this latter date there had been a small migration of these birds, for the dog picked up

one which was too exhausted to fly; the Redwings also were first noticed on that day. The wind had been blowing a gale from the north-west for the two previous days, and had shifted that morning to the south-west.

REDSHANK (*Totanus calidris*).—I have never before, except in the breeding season, seen Redshanks so tame as they were here. My previous experience of the Redshank as a shore bird had been that he was one of the wariest, not only keeping well out of harm's way himself, but letting every other bird know when there was any danger near. True, here they *did* fly off shrieking, and making a great noise if you came on them suddenly round a corner or over a rock; but if you approached quietly, or sat down and kept still, they took hardly any more notice of you than the Ring Plover. They went about almost entirely in single pairs, and kept pretty much to themselves.

CURLEW (*Numenius arquata*).—I suppose it is partly its innate wariness, and partly the fact that it is the only shore bird, besides the Golden Plover, that anyone up here thinks of shooting, that causes the Curlew to be just as wild as anywhere else. I never saw more than about fifteen together, and they were always well out on the edge of the tide, with a sentinel posted on the highest piece of rock. Once or twice a small flock was seen on the meadow-land, but always well out of shot of the nearest stone wall or other cover. It is only by lying up in their line of flight and trusting to luck that a shot can be got at all.

GULLS (*Larina*).—The great feature of the bird-life of this part of the British Isles is of course found in the Gulls; they are present everywhere, along the shore, by the loch-side, in the "parks," on the stubbles, on the dust-heaps, the house-roofs, and even on the chimney-pots; in fact, except perhaps in the middle of the moor, you cannot get away from them. The flocks were always mixed, consisting for the most part of Common and Herring Gulls, with a fair sprinkling of Kittiwakes and Black-headed Gulls, and either one or two pairs of Lesser Black-backs. Of the latter I never saw more than two or three pairs along the shore, and of Great Black-backs, I do not think there is more than one pair in this particular part of the coast. The Gulls were always absolutely fearless, and you could walk up to within a few yards of them before they rose. Two, an immature Lesser Black-back

and an adult Black-headed, had taken possession of a particular dust-bin, and they were to be seen there all day and every day, standing on an adjacent wall, or sitting asleep in the field a few yards off. Every morning, directly it was light, some twenty Black-headed Gulls came on to the lawn in front of the house, and were very busy for an hour and a half picking up worms; I never saw any other species there. In the evening large flocks used to assemble on the loch from the fields, and, after staying there a few minutes, fly off to sea for the night.

It was a very pretty sight watching the Kittiwakes fishing; on some days the sound was full of them. They reminded me very much of the Terns in their methods. A strong north-west wind was blowing, and the Kittiwakes would be swooping and wheeling about; when now and then one would mount to about twenty feet, and turn head to wind; then, after remaining stationary on outspread wings for a second, would drop like a stone on to its prey, sending the water up all round it, and completely disappearing for a couple of seconds in the spray; then, after about half a minute, it would rise again, and resume its wheeling flight.

On Oct. 5th I saw a Little Gull on a rock by the shore, and on the next day two more pairs. On the 8th I saw ten together, at the same place as I saw the one on the 5th. They were evidently on migration, as I did not see them again, and they were not so tame as the other Gulls. They were all in the adult winter plumage.

RICHARDSON'S SKUA (*Stercorarius crepidatus*).—I twice watched a pair of Arctic Skuas harrying the Kittiwakes, in the sound between Lambholm and the mainland. When hunting they always seem to work in pairs, one bird dashing at the Gull while the other hovers near to pick up the fish as soon as it is dropped. Both pairs belonged to the dark form. A single bird I saw on the 13th, close in shore, was very dark, with a somewhat lighter patch on each wing; in the dull light it looked quite black.

COMMON GUILLEMOT (*Uria troile*).—It is curious that I never once saw the Common Guillemot off the south-east mainland, whereas a few miles farther west in Scapa flow, and from there south to South Ronaldshay, they were very common.

BLACK GUILLEMOT (*Uria grylle*).—Very numerous in the sound

between Lambholm and the mainland, where they could always be seen, if it was calm enough, floating with the tide east or west, according to whether it was ebbing or flowing. A good many were also seen off the east coast. They were all in the speckled black and white plumage, no wholly black ones being seen. The stomachs of the two examined contained the remains of small crabs.

SLAVONIAN GREBE? (*Podiceps auritus*).—Two Grebes were seen on the loch at St. Mary's Holm on Oct. 15th; they were too large for Dabchicks, and so were probably of this species. They did not come near enough the shore to enable me to see the shape of the bill.

LITTLE GREBE (*Podiceps fluviatilis*).—There were two pairs of these birds on the loch at St. Mary's Holm.

NOTES ON THE SEAL AND WHALE FISHERY, 1899.

BY THOMAS SOUTHWELL, F.Z.S.

THE event of the year at St. John's is the starting of the sealing fleet, which this year (1899) took place under very favourable circumstances, the weather being fine and the harbour free from ice. As the clock struck eight on the morning of the 10th of March, those present witnessed the departure of twelve fine vessels, all making for the offing, their crews full of hope as to the result of the unknown future. The painful memory of the disasters which threw so deep a gloom over the voyage of the previous season could not fail to be present in the minds of the spectators, whose cheers, added to the salutes from the steam-whistles of the vessels, made the hills re-echo as the fleet steamed out to brave the hardships and dangers of the ice-fields. Happily no such disaster has to be recorded as resulting from the voyage thus so auspiciously commenced.

Of the eighteen steamers present at the Newfoundland fishery fourteen made for the ice off the east coast, and four left channel for the Gulf fishery; the latter, as will be seen, meeting with only partial success. All those which fished off the east coast did well, and the young Harps (few old Seals were killed) were in exceptionally fine condition; at the whelping time severe frosts prevailed, and experience shows that in such weather the young Seals thrive and rapidly become fat.

The first to strike the "Whitecoats" was the 'Neptune,' which met with a small and isolated patch near the Funk Islands, on the 11th of March; later on they were found in great numbers, and by the 29th of the same month three of the vessels were back again at St. John's with full cargoes—a most expeditious voyage, notwithstanding some delays arising from bad weather.

As the most successful vessel of the fleet, it will be sufficient

to give a brief outline of the voyage of the 'Neptune,' Capt. S. Blandford, which is typical of all the rest. As already mentioned, on the 11th of March, some twenty-five miles N E. of the Funk Islands, the 'Neptune' met with the first young Seals, but, judging that the main body of the breeding pack was to be found farther to the northward, Capt. Blandford, steamed thirty or forty miles in that direction in search of them, but on the 13th bad weather came on, and the vessel barely escaped being driven ashore on the Funks. From the 14th to the 18th the hurricane continued, and during the detention many old Seals were seen passing; they were, as their custom is, south of their young, and doubtless in search of food. Capt. Blandford estimates that some seventy miles of practically barren ice drifted past in a south-westerly direction before the whelping ice with the "Whitecoats" upon it appeared. This drift caused the pans bearing the young Seals to pass inside the Funks, although at the time he met the small patch, on the 11th of March before mentioned, the main body was seventy miles away in a northerly direction. The storm which thus brought the young Seals so conveniently within easy reach having somewhat abated, on the 18th March the 'Neptune,' with the 'Newfoundland' in company, headed in a westerly direction, and at once came up with them. By Monday, the 20th, 16,000 Seals were panned; the next day 15,000 more were added; and by Wednesday the total was made up to 41,000. Then came the usual waste: "the elements were unpropitious, and three pans were driven on the Funks and ground to pieces, two more went over Brenton's Rock to destruction, while on Sunday three pans were smashed on the Cabots, leaving only 32,000." As the bulk of the Seals were obtained by the other vessels in about the same locality and under the same conditions as to weather, it is probable that a similar loss of panned Seals was also experienced by them; but Capt. Blandford says that he was probably the greatest sufferer in this respect. I have said that very few old Seals were killed, in proof of which it may be mentioned that out of 17,286 Harps killed by the 'Newfoundland,' only fifty-three were old ones.

Four vessels—the 'Hope,' the 'Kite,' the 'Harlaw,' and the 'Nimrod'—went to the Gulf fishery. None of these was very successful, with the exception of the 'Hope,' which fell in with

the western Harps towards the end of March, about twenty miles north-west of Grindstone Islands, where, reaching them with difficulty, she secured 26,586. The 'Kite' struck the Seals in the same locality somewhat later, with every prospect of securing a good cargo, but in answer to signals of distress from the s.s. 'Gaspia,' a trader which was fast in the ice, left the sealing to go to her assistance, eventually convoying her safely into St. John's, but having captured only 699 Seals. The 'Harlaw' and the 'Nimrod' hunted in company in the neighbourhood of Cape St. George, the former capturing 1570 old and 2476 young Hoods (equal in weight to about 9000 young Harps), and the latter 3711 of the same species. These Hooded Seals are said to have been of an enormous size, but their capture was attended with considerable danger and labour, as the vessels could not get within three miles of the sheet on which they were, and the intervening ice was much broken and rafted.

Mr. Thorburn tells me that, owing to the severity of the frost in the month of February, the ice in the Gulf was unusually heavy, in consequence of which the eastern Harps were not seen at all, and the schooners fishing there made a very bad season; he estimates that the number of Seals which fell to these schooners, and to the shore fishers in Bonavista Bay, did not much exceed 20,000.

The total number of Seals captured by the eighteen steamers, of the aggregate capacity of 5500 tons, and manned by some 3500 seamen, was 268,787 (against 241,708 in the previous season), of a net value of £68,527, the price of produce being very disappointing. The bulk of the vessels were fairly fished, nine having more than 15,000: the 'Neptune' taking the lead with 32,129; five others had above 10,000, and the remaining four from three to four thousand each, with the exception of the 'Kite,' which, as already explained, was otherwise occupied, and killed only 699 Seals. The average of the whole was 14,932. The fishing in the past season, although the ice had been heavy and the weather rough, has been singularly free from disaster, and had prices ruled better would have been highly successful.

The Norwegian sealers, I have been informed, did very badly, and they are gradually being sold out of the trade; the Bottle-nose fishery also produced about one-third less than in the

previous season, the scarcity causing oil of this class to advance to £28 per ton.

With reference to the Fin-Whale fishery recently established by the "Cabot Whale-fishing Company" (see Notes for 1898, p. 107), Mr. Thorburn has been kind enough to obtain for me the following particulars:—The 'Cabot' fished in Hermitage Bay in the end of February and during the month of March, killing eleven Whales, all "Sulphur-bottoms." This species was found in plenty in the locality named until the middle of July, and any number could have been taken had the Company been in a position to deal with them. Mr. Thorburn's informant states that these immense Whales appear nearly always to be in good condition, and he believes they reproduce only once in three years. From the middle of July until the first week in October the 'Cabot' fished in Notre Dame Bay, killing ninety-eight Whales, nine of them "Humpbacks," the remainder being "Finbacks." In October these Whales become scarce and poor in condition, owing it is believed to their reproducing some time previous to that date, and being engaged suckling their young; they then leave the coast, probably following their food supply. The ninety-eight Whales yielded 286 tons of oil and six tons of bone; the oil produced about £17 per ton; the "Whale-bone," I imagine, would be of little value. It will be observed that, in speaking of the Whales killed by the Cabot Company, I have used only the popular names applied to them by their captors; this I have done advisedly, for, in addition to the uncertainty with regard to their true species, and the unsettled state of the nomenclature of the group, it was impossible to speak with authority without opportunities of personal investigation, and might only add to the existing confusion; it is therefore with pleasure that I hear from Dr. F. W. True, of the United States National Museum, that he spent a month at the station last summer, and that he hopes to do for the Newfoundland Fin-Whales what Mr. A. H. Cocks and Prof. Robert Collett have already done for a similar fishery on the coast of Lapland. It is Dr. True's intention shortly to make known the general result of his investigations, which will eventually be embodied in a contemplated monograph of the Finbacks of the American waters. Dr. True has already published in the 'Pro-

ceedings of the United States National Museum' (xxi. pp. 617-635) an exhaustive paper on the nomenclature of the Whalebone Whales of the European waters, treated with his usual thoroughness; and, whether or not European cetologists finally accept the somewhat startling changes he advocates, they cannot but be grateful for the analysis of the evidence on which he bases his conclusions. It is rather out of place in this paper to discuss the much-vexed question of the revision of nomenclature, but the well-defined and not too numerous group of Cetacea seems readily to lend itself for treatment in this respect, and surely by a little forbearance and the sacrifice of some degree of sentiment, cetologists might be able to arrive at an arrangement by which this section at least of the Mammalia might be cleared of the nomenclatorial fog which surrounds it, and be settled once for all on a firm and universal basis.

The Whale fishery in the past season has on the whole been fairly successful, but its most remarkable feature has been the continued apparent absence of Right Whales in the Greenland Seas, whereas in Davis Strait and in the adjoining waters they have been seen in abundance. The 'Balæna' cruised for three months in the Greenland waters, during which time she saw only one Whale; this she captured on the 19th of May, on the north-west fishing-grounds. It is difficult to account for this absence of Whales from their former resorts, but it is doubtless due in part to overfishing, and perhaps even more to the present unsuitable condition of their feeding grounds owing to the continued absence of ice, a state of things which has continued for a most unusual length of time, and is quite contrary to precedent (see Zool. 1898, p. 73). In Davis Strait, on the other hand, Whales were in plenty in all their usual resorts, but from the many "escapes" it is probable they were very shy. There appears also to be a fair proportion of old and young fish, which promises well for the continuance of the species. The 'Diana' killed a mother and sucker in Lancaster Sound, early in July; also two other small Whales in the same locality. The 'Eclipse' also killed a very small Whale of four-foot bone, in Pond's Bay, where young fish are rarely met with. In the same locality the 'Diana' met with a fighting fish which gave them some trouble; but although it attacked several of the boats, it was eventually

killed without injury to the crews. The bulk of the Whales seen or captured were of good size, some of them very large.

The 'Balæna,' as already mentioned, was the only whaler in the Greenland Seas. After cruising in the usual resorts of the Whales and seeing only one, which she captured, Capt. Robertson made for the east coast of Greenland in search of Walruses, and there he twice met with the Swedish expedition under Dr. Nathrost, rendering what aid he was able in the fruitless search for Andrée. Here ten Musk Oxen were killed, and some valuable explorations made, which will be duly reported by Dr. Nathrost. Finally the 'Balæna' went round to Davis Strait, where she killed two other fine Whales off Coutts Inlet, making her cargo three Whales, ten Musk Oxen, eleven Bears, three Narwhals, and seven Walrus.

The 'Diana' was very successful, killing ten Whales, mostly in Lancaster Sound and Coutts Inlet. There was nothing remarkable in her voyage except her success, her cargo consisting of ten Whales, seventy-one Walrus, fourteen Bears, twenty-two Seals, and three Narwhals.

The 'Nova Zembla' also did well at the Davis Strait fishery, returning with eight Whales and nine Bears.

The 'Eclipse' left Dundee at the end of April, and killed her first Whale off Disco on the 19th of May. North of Melville Bay Capt. Milne visited an Esquimaux settlement—Tiganrock—obtaining news of Lieut. Peary; thence she crossed over to Eclipse Sound, which she navigated to its extremity, finding traces of Esquimaux and killing fifteen Reindeer; but, although she saw a considerable number of Whales, fortune went against her, and she only succeeded in capturing three (one very small), as already mentioned, and reached Dundee on November 14th, experiencing very wild weather on her homeward voyage.

The 'Esquimaux' also went to Davis Strait, but I am informed that her voyage was not entirely of a business character; as, however, she brought home two Whales, yielding 23 tons of oil and 21 cwt. of bone, in addition to forty Walruses, twenty-three Bears, and sundry seals, worth some £2000, the produce would go a long way towards paying the expenses of the trip.

Two other vessels left Dundee, the 'Active' and the 'Polar

Star,' bound for Hudson Strait, the former repeating her voyage of the previous season. The entrance to Hudson Strait, always very unapproachable in the spring owing to the accumulation of ice and the boisterous weather experienced at that season, was more than usually blocked by the drift of ice from Davis Strait, and the two vessels were twenty-eight days later in entering the Strait than they anticipated, even then they forced a passage with difficulty. The terrible squeezing and buffeting they experienced told severely on the 'Polar Star,' a vessel thirty years old, which, after being frequently beset, had finally to be abandoned in a sinking condition early in October, the 'Active,' which had been standing by her companion for some time taking on board her crew and saving one hundred and thirty-two Walrus hides and four Bears. The 'Active' saw very few Whales, and did not succeed in catching any, the result of her voyage being one hundred and seventy-three Walruses, thirty-four Bears, and fifty-eight Musk Ox skins, the latter obtained from the natives on the mainland to the west of Rowe's Welcome. Late in the season the weather was very wild, and on two occasions seventy-three in the one case and one hundred and nine Walruses in the other, which had been killed and left on the shore, were washed away and lost during terrific gales. An American vessel which wintered in the Strait secured eight Whales in June and July, before the 'Active' got upon the fishing ground, and when spoken had the produce of sixteen Whales on board. As it is evident the vessels despatched from Scotland must arrive too late to take full advantage of the fishery in this locality, Mr. Kinnes resolved to establish a station in Fisher Strait, on the shore of Southampton Island. For this purpose the first mate of the 'Active,' Mr. J. W. Murray, with two others, were landed, a large wooden dwelling-house and boat-shed having been taken out in sections for their use; here they contemplate remaining for three years, Whale hunting, assisted by five boats' crews of natives.

The only other vessel bringing produce from the Arctic was the carrying ship 'Alert,' of Peterhead, which brought home the produce of two Whales, 150 Walruses, and 2900 Seals, from the Cumberland Gulf stations.

Seven vessels left Dundee in the past season; one of these,

the 'Polar Star,' was lost, and the 'Alert' returned from Cumberland Gulf. The total produce of these eight vessels was 28 Whales, 609 Walruses, 16 Narwhals, 3036 Seals, 128 Bears, and 68 Musk Oxen; the oil yielded was 385 tons, and the bone 350 cwt.—a very mixed cargo; but, except for the Hudson Bay section of the fleet, apparently a fairly successful voyage commercially. There has been no very recent sale of whalebone, but I am informed that the last sale effected produced £1400 per ton; more is being asked for it now. Whale oil is producing from £18 to £19, and Seal oil from £18 to £21 per ton. Walrus hides, if heavy, bring as high as £40 each. They are used for polishing wheels for bicycle work, and therefore should be very thick; light hides are of little use, and not in request, therefore of little value. The total value of the produce of the season, estimating the bone at the last selling price, and allowing for undersize, would probably be about £38,000.

As part of the produce of the late voyage, sixty-eight Musk Oxen will be noticed; ten of these were from East Greenland, the remainder from the mainland of Arctic America in the form of skins procured from the natives. This is sad reading, for not only does it threaten the extinction of this most interesting animal, but also of one of the food supplies of the Indians and Esquimaux of this sterile land, who maintain at the best a very precarious existence on the flesh of the Reindeer, the Walrus, and the Musk Ox; should these supplies fail the natives will undoubtedly perish, a fate which has already to a great extent befallen their brethren to the west of Bering's Strait. Before the natives became possessed of firearms they could by their primitive methods obtain sufficient food for their wants, and skins for their tents and winter clothing, without undue sacrifice of life; but their capacity for destruction was limited. Since however they have been supplied with modern weapons they still destroy life to the utmost of their ability, without thought for the future, and, forgetful of their own wants, exchange the skins with white traders to an extent only limited by their capacity for slaughter.*

* My friend Mr. Kinnes, I am glad to say, tells me that this does not apply to the Walrus, for on enquiry by the captain of the 'Active' for skins of these animals, the natives told them that they only killed what they wanted for themselves, which they considered quite enough.

not for necessities only, but for luxuries they did better without in the past. The Musk Ox is one of the easiest of wild animals to approach, and as the demand for their skins is unlimited and the supply very much the reverse, it is by no means unlikely that the species will be exterminated before its life-history is fully studied by naturalists. Although not difficult to capture, and easy to manage when young,* the only living examples which have hitherto been brought to this country are two young ones, unfortunately both males, recently added to the Duke of Bedford's collections at Woburn.

The above are not the whole of these animals which have been captured during the past year; fortunately those I am about to mention were made a better use of. Dr. Nathrost, writing of his recent expedition to East Greenland (Geo. Jour. Nov. 1899, vol. xiv. pp. 534-37), and referring to the zoological results of the voyage, says, "We have secured twenty-eight Musk Oxen, all of which were prepared in some way or other, so that we had skeletons, skins, all the interior parts, brains, &c., brought home." This is well so far, but he also mentions "the fact that the White Polar Wolves have made an invasion around the northern part of Greenland along the whole coast, at least to Scoresby Sound," and that "the Reindeer are now very scanty in consequence of their having been killed by the Wolves," a fate too likely to be shared by the Musk Oxen.

My thanks, as on former occasions, are especially due to Mr. Michael Thorburn, of St. John's, Newfoundland, and Mr. Robert Kinnes, of Dundee, for their kindness in supplying me with much valuable information.

* See Buffalo Jones's 'Forty Years of Adventure,' p. 382, *et seq.*, for an account of lassoing young Musk Oxen near Chesterfield Inlet.

ON SEXUAL DIFFERENCES IN THE WING OF THE HOUSE-SPARROW (*PASSER DOMESTICUS*).

BY ARTHUR G. BUTLER, Ph.D., &c.

IN a short article on the wing of the Sky-Lark, which I published in 'The Zoologist' for 1898, I expressed my intention of noting the sexual differences in wing-structure of other species. Mr. C. H. B. Grant again assisted me with wings of three male and three female specimens of the domestic Sparrow; I already possessed five others, and subsequently Mr. F. W. Frohawk added to my collection. I therefore thought I could not do better than select this as an additional example in proof of the fact that, as a rule, the wings of male birds are better adapted to swift flight than those of their mates, thus enabling the former to overtake the latter when courting.

Of the six wings which Mr. Grant secured for me, all are carefully labelled, but in five of them the important note is added of the actual length of the bird in the flesh from which the wing was removed. As will at once be seen, this is a point of considerable importance, as it proves that, although individuals vary slightly in size, there is no great discrepancy in the total length of the sexes in the flesh. The following are measurements of three males:—

- | | |
|-----------------------|-------------------------|
| 1. Total length . . . | 6 $\frac{3}{8}$ inches. |
| 2. " " . . . | 6 $\frac{1}{4}$ " |
| 3. " " . . . | 6 $\frac{1}{8}$ " |

Of two females the measurements are:—

- | | |
|-----------------------|-------------------------|
| 1. Total length . . . | 6 $\frac{1}{4}$ inches. |
| 2. " " . . . | 6 $\frac{1}{8}$ " |

Comparing the expanded wings of the sexes in the same specimens, we get the following interesting results:—

- | | | | |
|---------|---|-----------------------|--------------------|
| Males | { | 1. Total length . . . | 4 inches. |
| | | 2. " " . . . | 3 $\frac{3}{4}$ " |
| | | 3. " " . . . | 3 $\frac{5}{8}$ " |
| Females | { | Total length . . . | 3 $\frac{1}{2}$ " |
| | | " " . . . | 3 $\frac{7}{16}$ " |

Thus the largest hen, although a bigger bird than the largest cock, measures half an inch less in entire length of wing, this difference being due entirely to the lengthening of the second to the fifth primaries, with their coverts, in the male birds. These same feathers are often, though by no means invariably, narrower in the females than in the males, and when this is the case the resisting power of the wing must be considerably weakened.

The width of the wing from back to front shows little, if any, sexual difference, the secondaries being about of equal length in male and female; the natural effect of breadth without correspondingly developed length would be to produce a somewhat heavier and slower flight, so that in every respect the male bird has the advantage.

ORNITHOLOGICAL NOTES FROM MID-WALES.

By J. H. SALTER, University College, Aberystwyth.

THE following notes, referring to the past two years, are in continuation of those which appeared in 'The Zoologist' (1898, pp. 198-201):—

A Girl Bunting was singing upon Jan. 8th, 1898. This species with us appears to sing much more freely in winter than the Yellowhammer does. A visit paid to a small Heronry upon March 28th showed that these birds vie with the Raven in the matter of early breeding. In one nest young birds were calling loudly. There were egg-shells under two other nests, while a fourth contained three small young ones, and an egg which was hatching. On April 7th the young birds of the first mentioned brood were flying from tree to tree. At Craig-y-Pistyll, on March 28th, a pair of Ravens had a nest with five fresh eggs. It was found with difficulty, being inconspicuous amongst the heather and brambles which grew from the ledges of the crag.

While staying at Abergwesyn, in the extreme west of Breconshire, I noticed with interest the Nuthatch upon the trees—almost the last in this direction—close to the hotel. It does not cross the mountains, and hence only occurs very exceptionally upon their western or Cardiganshire side.

On April 9th I visited one of the few remaining breeding haunts of the Kite, an oak wood covering the slopes of a rocky hill. The pair of birds soon appeared, and, as they soared, showed their graceful flight to perfection. In turning, one or the other would often "throw over" almost on to its back against the stiff breeze. The nest, about thirty feet from the ground in an oak, being a new one, was small as compared with the size attained when utilized year after year. It contained two eggs, indicating that in this district the Kite breeds about a fortnight earlier than the Buzzard. A very large nest, from which, to my knowledge, Kites' eggs were taken in 1893, proved to be grass-

grown and untenanted. The Common Buzzard, though the fate of the Kite inevitably awaits it, is still fairly numerous, and eleven pairs were found breeding within a radius of perhaps five miles from our headquarters. Two presumably young and inexperienced birds had built about twenty feet from the ground in a small sycamore, one of the few trees surrounding a ruined sheep-fold upon the open moor.

On April 30th newly-arrived Pied Flycatchers, all of them males, were singing amongst the birches. A pair of Ravens, in the Nant Brenig, had three fully-fledged young ones just ready to leave the nest. A pair of White Wagtails upon Borth golf-links on May 13th were evidently on passage. There were three or four Turnstones on the strand, and an Oystercatcher's nest contained four eggs; I have never previously found more than three. On the 16th many Wheatears at Clarach were still on migration. A Wood Wren's nest was almost entirely composed of fir-needles. A Whinchat, singing with strange unfamiliar variations, so that I at first took it to be a Sedge Warbler, recalled the suggestions which have lately been made as to the power of mimicry in this species.

On June 4th I visited a colony of Lesser Terns near Towyn, and found the birds in about their usual numbers. Walking over the moors from the Teifi Pools to Cwm Ystwyth, on June 8th, I met with one pair of Golden Plover and several Dunlin, which were evidently breeding. The note of the latter bird, in the nesting season, is like the shrill rattle of a pea-whistle. Capt. Cosens informed me that a pair of Turtle-Doves bred in his grounds at Bronpadarn. On June 20th I heard the Manx Shearwater's note about 11.30 p.m.

During a few days spent in Snowdonia at the end of June several pairs of Choughs were seen. In company with Ravens, they frequent the cliffs of Clogwyn du'r Arddu. In the Nant Francon a nest of young Ring-Ouzels in the loose stone wall by the roadside was most conspicuous. Revisiting the same neighbourhood three months later, I found the Wheatear and Ring-Ouzel, on Sept. 23rd, still lingering near the summit of Carnedd Llewelyn. Four Ravens frequented the Glyders. Stonechats were numerous at Pen-y-gwryd, where they came into the hotel garden. A pair of Buzzards, the only ones met with, were seen

in Cwm Dyli, on the flanks of Snowdon, and during an ascent of that mountain I noticed a Fox crossing the ridge of Crib-y-Ddysgyl just below the summit.

At Aberystwyth, on Oct. 4th, a Stonechat sang a few strains at dusk; I had not previously known this species as an autumn songster. On the 15th Mr. Hutchings showed me a Spotted Crake just set up. In November Bramblings appeared under the beech trees. They seem to visit us biennially, missing the alternate years when there is no beech-mast. On Nov. 12th I received a Polecat from Nanteos.

The rest of my notes refer to the past year.

On Jan. 18th Mr. Hutchings showed me an immature specimen of the Little Gull. It was obtained during rough weather about nine days previously. A few bright warm days about Feb. 20th brought the Stonechats into song. On the 28th I received a very large male Polecat from the same locality as the previous one.

Upon March 1st, St. David's Day, visiting a nesting site of the Raven upon the coast about six miles south of this town, I found, as the glass showed, that the birds had refitted their old nest, which already contained an egg or eggs. About this date Curlew were constantly on the move, passing inland to their breeding quarters; they were to be heard at all hours of the day and night. On March 11th Herons were already sitting. A small party of Lesser Redpolls in alders at Llanilar were, with one exception, the first that I have met with in this county. On March 28th a Raven's nest in the Nant Berwyn, near Tregaron, contained three incubated eggs. The birds were furious, and came within ten yards of us, the cock tearing up soil and grass with his bill. Two days later I saw four Wood Larks on the wing at Llanbadarn. About two hundred and fifty Golden Plover were resting on the sands at the mouth of the Dovey on April 19th. On the 23rd a Wheatear was singing well at 11.45 p.m., a fair moonlight night. On April 26th, and again three days later, I heard the note of the Nutnatch in Cwm Woods. I have never previously identified this bird at Aberystwyth, though always on the look-out for it during the past eight years. A Pied Flycatcher was singing amongst the oaks at Nanteos on May 7th.

Birds were never in better voice than during the first half of

the month, the wet evidently suiting them. I found the pair of Kites again attempting to breed in the same locality as last year. On May 23rd they were lining a newly-built nest, situated in the same tree and in the same fork as five years ago. This was evidently the second attempt of the season. An old nest was lined with *rolls* of sheep's wool. A pair of Buzzards had a nest with a single young one, resting against a shrub of birch on the steep hillside, with scarcely anything of a fall below it. A pair of Ravens, which had three young nearly ready to fly, did not venture within a quarter of a mile of us, their behaviour being thus strikingly different from that of the above-mentioned pair. Pied Flycatchers were breeding freely, often in disused nesting-holes of the Green or Greater Spotted Woodpecker. Examining a number of Jackdaws' nests in the cliff, I found in many cases the whole brood dead, as the result of the cold wet weather at Whitsuntide. In June I heard the note of the Quail in two localities some six miles apart.

On Sept. 7th I noted a pair of Choughs passing over the hill at the northern end of the town. A Black Redstart frequented the College roof for at least a fortnight, basking upon the leads every fine day, and hawking for flies from the lightning-conductors. I last saw it on Nov. 6th. On Nov. 1st Thrushes and Blackbirds on migration were beating against the College windows after dark. Mr. Hutchings showed me a curious light-coloured variety of the Polecat on Dec. 29th, and reported three or four Bitterns obtained during the frost.

OBITUARY.

DR. ELLIOTT COUES.

ANOTHER first-rate ornithologist has, we regret to say, gone home to his last resting-place, and will be sorely missed, not only in America, but also in Europe, and especially in England, where he was personally known to so many of us.

Dr. Elliott Coues, who passed away on Christmas Day last at the comparatively early age of fifty-seven, was not only a most painstaking and hard-working cabinet naturalist, but equally good as a field naturalist, as shown by the good field-work he did during the many years he served as assistant-surgeon in the U.S. army. Not only was he one of the first authorities on North American ornithology, but he also did excellent work, in conjunction with Mr. J. A. Allen, in the study of North American mammals, and especially in the publication of their work on the 'Fur-bearing Animals.' His separately published works, by which his name is best known, are the 'Key to North American Birds,' 'The Birds of the North-West,' 'The Birds of the Colorado Valley,' and 'Check-List of North American Birds'; but besides these, his various articles in periodicals are numerous, and of considerable value.

Dr. Coues was an unusually hard worker, as no trouble was too great for him when working out a difficult problem; and he was also enthusiastic to a degree. On whatever subject he wrote he displayed great originality of thought, and his pen was verily that of a ready writer. A firm friend and an excellent companion, he was also, as so often is the case, a somewhat bitter enemy.

The writer and he have been on friendly terms during the past thirty years, and when he was in England he stayed with him, and many and pleasant were the discussions on ornithology that took place, especially those on trinomial nomenclature, on which each held very different views.

Dr. Coues, who was one of the founders of the American Ornithologists' Union, and at one time its President, became Professor of Zoology and Comparative Anatomy at Norwich University, Vermont, in 1869, and held the chair of Anatomy in the National Medical College from 1877 to 1883. For some months prior to his death he had been in bad health, and on the 6th of December underwent a serious surgical operation; his death, which took place at the Johns Hopkins Hospital, Baltimore, resulting from the same.

H. E. D.

DR. KARL RUSS.

DR. KARL RUSS, the eminent German student of bird-life, died on Sept. 29th, 1899. By his death both scientific aviculture and ornithology have sustained a severe loss.

Dr. Russ was always careful either personally to describe, or to obtain accurate descriptions of, the young plumage of all birds bred in captivity, from the egg until the change to the adult plumage; he noted the character and number of eggs, the duration of incubation, the age at which the young left the nest, and that at which their adult plumage was attained. Lastly, he carefully noted the colouring and variation in the soft parts in every adult bird which he described.

Russ was the son of an apothecary, and was born on Jan. 14th, 1833; he was therefore only in his sixty-seventh year when he died; yet he lived to complete the last volume of what he himself calls "the principal work" of his life in 1898, and saw it published in 1899.

'Die Fremdländischen Stubenvögel,' in four volumes, with effective (though hardly scientific) chromo-lithographic plates, is well worth the consideration of the most exclusive ornithologists; they may find much therein which will be new to them—facts as to seasonal changes of plumage, which some have hesitated to believe in, are proved by actual experience; several differences in the colouring of soft parts are indicated; with many other details of importance.

A. G. B.

NOTES AND QUERIES.

AVES.

Early Appearance of Chiffchaff.—On Dec. 31st I saw and watched for some time, with a field-glass in my garden here, a specimen of the Chiffchaff (*Phylloscopus rufus*); it appeared quite lively, and was busily engaged searching for insects among some evergreen shrubs. I consider this a very late appearance for this well-known Warbler.—W. J. WILLIAMS (Garville Road, Rathgar).

Nesting Habits of Great Tit.—Referring to Mr. Aplin's note on the Great Tit (*Parus major*) (*ante*, p. 19), he may not be aware that this bird is in the habit of covering its eggs till it has laid the full clutch, or nearly so. For some years past Great Tits have nested in our boxes here, frequently six or eight pairs in a season, and often the removal of the lid has revealed an apparently unfinished nest, which has contained three or four eggs covered with fur or wool. Perhaps I may add that we have had as tenants of our nest-boxes here the Redstart, Great Tit, Blue Tit, Cole Tit, Marsh Tit, Nuthatch, House-Sparrow, Starling, and Wryneck; and a neighbour who lives in an adjoining village has repeatedly had Tree-Sparrows nesting in his boxes.—JULIAN G. TUCK (Tostock Rectory, Bury St. Edmunds, Suffolk).

Great Grey Shrike in Suffolk.—A very perfect example of the race (or species) of Great Grey Shrike (*Lanius excubitor*), with one spot on the wing, was shot at Risby, near Bury St. Edmunds, about Nov. 20th. By the delicate pale grey of the back, and the very slight indications of markings on the breast, it appears to be a fully adult bird.—JULIAN G. TUCK (Tostock Rectory, Bury St. Edmunds, Suffolk).

Red-billed Chough.—At the last meeting of the Hampstead Scientific Society, I was enabled to exhibit a very fine mounted specimen of the Red-billed Chough (*Pyrrhocorax graculus*), which was shot from among a flock of Rooks near Hendon during last summer (1899). The bird was brought in the flesh to Mr. J. E. Whiting, of Heath Street, for preservation.—BASIL W. MARTIN (6, Holly Place, Hampstead).

Hoopoe in Anglesea.—Whilst engaged in investigating the occurrence of rare birds in Cheshire, I recently came across a specimen of the Hoopoe

(*Upupa epops*) in a keeper's cottage at Carden, which had been shot by the gamekeeper at Bodyor, near Holyhead, "about twenty-two years ago."—T. A. COWARD (Bowdon, Cheshire).

Peregrine in Suffolk.—On Jan. 17th I saw in the flesh, at Bury St. Edmunds, one of the finest adult female Peregrines (*Falco peregrinus*) which has ever come under my notice, shot by a keeper within an hour's walk of Bury Station. Females of this species very much outnumber males, both in the adult and immature plumage, and I only know of two adult male Peregrines obtained in Suffolk—one shot at Ickworth about 1860, which my father purchased at the time; and one (now in the Hele Collection in the Ipswich Museum), which struck the telegraph-wires near Aldeburgh in March, 1865.—JULIAN G. TUCK (Tostock Rectory, Bury St. Edmunds, Suffolk).

Bittern near Scarborough.—Last Friday (Dec. 29th) Mr. Challinor, farmer, Scalby Lodge, noticed and shot a rare bird in one of his fields which was flooded with water. The bird proved to be a beautiful specimen of the Common Bittern (*Botaurus stellaris*), or rather it should be called uncommon, seeing that it is about fifteen years since the last one was captured on Scalby Road, and which is now in the possession of Sir Wm. Fielding, Bart., South Cliff. It was brought to me to be preserved. The Osprey which was shot near here a few weeks ago, and which was recorded in the papers, also goes into Mr. Challinor's collection. — JOHN MORLEY (King Street, Scarborough).

Little Gull (*Larus minutus*) on the Thames.—I have recently added to my collection a female example of *L. minutus* in immature plumage. It was shot by Mr. E. Goodman, of Southend, who kindly gave it me shortly after securing it, and informed me its flight exactly resembled that of a small Tern. I found its gizzard contained some very small fishes' bones. The occurrence of this species at the end of December is, I believe, very unusual, as the majority of specimens that have been observed off the British coasts have been in the autumn and spring migrations. As I have often found that the lengths of birds given in various works on ornithology are not very reliable—due, I fancy, to the measurements being taken from skins and not from birds in the flesh—it may therefore be interesting to note that this bird in the flesh measured in length, from tip of bill to end of tail, $10\frac{1}{4}$ in.; wing, from carpal joint to end of longest primary, $8\frac{1}{2}$ in.; expanse of wings, 25 in.; and weight only $3\frac{1}{2}$ oz., although the bird was in excellent condition.—F. W. FROHAWK.

Winter Notes from Haddiscoe.—During the past few months sportsmen have had little to complain of in the way of sport on the Norfolk

marshes and waterways. During the month of September three Solitary Snipes fell victims to the Partridge guns in the locality of Haddiscoe. October witnessed the arrival of many Woodcocks, more than the usual complement. Individuals are being shot even now (January) almost daily; two were killed quite close to my door at Christmas, and another caught in a Rabbit-trap. In November the migration of Snipe exceeded that of many previous years, especially the Jacks, which I found in plenty at favourite haunts, and those I shot were in fine condition, being very fat and plump. Golden Plover have been exceedingly scarce. With December came the cream of wildfowl shooting; the short snap of winter weather in the shape of a snow-fall and a few sharp frosts filled the district with all kinds of wildfowl. Some of the gunners who went out with a shoulder-gun grumbled at bad luck after having bagged half a score of Duck in the space of a few hours by the river-side! The numbers slaughtered must have been enormous, the price of Wild Duck coming down as low as a shilling each. From an old Breydon gunner of many years' standing I learnt he had never seen the like before. Such unusual numbers of wild birds brought out sportsmen of all ages with various firearms, and most made good bags. For a few days Snipe-shooting was excellent, and so many killed that local game-dealers only paid fourpence each for them. As regards Coots and Moor-hens, dealers would not be troubled with them, owing to the great number of slain. On Dec. 18th, whilst walking by the side of Breydon, I observed fully three thousand Coots disporting themselves on the still water. On the approach of a gun-punt the whole host, with a mighty roar, took wing, alighting farther afield, only to receive more molestation from some other knight of the trigger. I counted eight punts containing swivel-guns of large calibre, with owners anxiously looking out with field-glasses for a shot, but the best part of the Duck-shooting was over at this date. I shot a specimen of the Great-crested Grebe on the Waveney. Three Goosanders were also procured on the same river, beside a quantity of Tufted Duck and three Smew. I saw several flocks of Geese; one flock numbered thirty-four. A large flock of Barnacle-Geese visited Breydon; one gunner shooting five. Mr. Walter Lowne, taxidermist, of Great Yarmouth, informs me that during the past six months he has received for preserving a beautiful specimen of the Purple Heron, shot in Suffolk; two Bitterns of the common species, one shot in the parish of Martham, the other by the river Bure; a Grey Phalarope, shot on Breydon; and other species which need little attention. From what I have seen, and through information received from reliable sources, I find, in spite of appeals, the slaughter amongst Kingfishers of late has been terrible; I have seen several Kingfishers during the winter.—LAST FARMAN (Haddiscoe, Norfolk).

Serrated Claws of the Common Heron.—In 'The Zoologist' for January (p. 38), Mr. Stanley Lewis expresses disappointment at his inability to find in my 'Manual of British Birds' any "mention of the serrated claws of this species." If he turns to the Introduction, p. xxv, he may read that one of the distinctions of the genus *Ardea*—and, indeed, of the whole family *Ardeidae*—is: "Middle claw pectinated on the inner edge." In a condensed work, in which every line and almost every word had to be counted, it would have been a waste of space to repeat this in the description of each of the ten species of Herons and Bitterns which find a place in the British list. As for the use of this pectination, upon which Mr. Lewis invites an expression of opinion, I can only say that "the bearing—of the small-toothed comb—lies in its application."—HOWARD SAUNDERS.

ORGANIC EVOLUTION.

Remarks relating to Mimicry.—In Mr. C. A. Witchell's interesting "Stray Notes on Mimicry" (*ante*, p. 32), one or two of the facts cited in illustration of his views seem hardly to meet the case, or at least to be open to comment. For instance, referring to a suggested tendency with animals "to resemble things that they like, be those things mates or surrounding substances," the writer proceeds as follows:—"I am aware that the sexual passion is not credited with this effect, but we know that breeders of prize poultry are careful to keep their male birds from running with birds not of the same variety, because if they do they will 'throw' feathers like those of their companions. *I have seen this occur in a well-bred East Indian drake that ran with a white Duck*"*. It is not at all unusual for black Ducks, whatever their companions or surroundings may be, to become, after their first or second year, more or less speckled with white. On a farm where black Ducks only (a cross between Cayuga and East Indian) were kept for many years in succession, this was a common occurrence. The process is a very gradual one. After about the second or third moult a white feather or two is noticed about the head, and at each succeeding moult more white appears, this speckling or splashing gradually increasing and spreading itself over the whole of the bird's plumage. No other Ducks were kept on the farm, nor were there any white fowls. Again, with respect to the Snake-like hissing noise made by certain nesting birds, the following remarks occur:—"For a bird will hiss when on the nest, and at no other time, and which has yet never seen a Snake, or apparently never heard it hiss; such is a town-bred fowl or duck." Sitting Ducks certainly hiss in an unmistakable manner at an intruder, but, extensive as is the vocabulary of the domestic fowl, I do not remember ever hearing either a town or

* The italics are mine.

country hen under any circumstance make a sound which could be likened to a "hiss." Farther on we find the following sentence:—"The so-called feigning of death seems to me to have no relation to mimicry, but to an exaggeration of that stillness which so many animals adopt to avoid observation." I think, notwithstanding that, in some instances at least, the ruse is carried so far as to justify its being called a feigning (or mimicry) of death or sleep; otherwise, in the case of the Landrail, for instance, why should the bird close its eyes when engaged in this piece of deception? As to reptiles and batrachians feigning death, one of the latter (*Bombinator igneus*) almost goes farther than this. Its aim seems to be to simulate the unattractive appearance of a dead Toad or Frog which has been shrivelled and dried up by the heat of the sun's rays. I have seen and handled one in this state. It had just been taken from a roadside pond in Normandy, and at once went through this singular performance. Flattening and depressing its body in a wonderful manner, at the same time closing the eyes and throwing up the head and all four limbs into the air, it thus formed its whole body into a cup-like shape, of which the middle of the back was the deepest part.

—G. T. ROPE.

NOTICES OF NEW BOOKS.

A First Book in Organic Evolution. By D. KERFOOT SHUTE, A.B., M.D. Kegan Paul, Trench, Trübner & Co. Ltd.

THE recognition of organic evolution is well pronounced among American biologists, and as a rule possesses a marked characteristic, which by some thinkers in this country is stated to exhibit the traces of what is considered the Neo-Lamarckian heresy. The present volume may, or may not, be tainted with an unpopular or heretical consideration of the inheritance of acquired characters, but there is much more profitable subject-matter to be found in its pages than the search for soundness of view as regards this dogma, while probably the author may be pronounced orthodox on the point. The book "has been written chiefly for the use of students in the medical department of the Columbian University," and by the ophthalmic surgeon to the University Hospital, while its author states that its production has been materially assisted by the advice of Prof. Gill, the eminent ichthyologist. We have thus an American survey of the subject by a surgeon, with the suggestions of a good zoologist, and on the subject of evolution the special standpoint of the author should always be understood.

Dr. Shute's special knowledge thus enables him to point out the confusion of thought which often fails to discriminate between *heredity* and *pseudo-heredity*, even physicians frequently writing of certain diseases as hereditary, whereas *congenital bacterial infection*, or the transmission of a microbe of the disease through the germ-cells of the parents is the correct explanation. That variation may be influenced by environment seems to be proved by several facts adduced by the author, and the following may be taken as an example:—"A certain species of Snail was introduced into Lexington, Virginia, a few years ago from Europe. In its new habitat it varied very much. One

hundred and twenty-five varieties have been discovered there, sixty-seven of which are new and unknown in Europe, the native home of the species."

Perhaps, however, the most debatable proposition advanced is that human customs, morals, and religions have, "as yet, very slightly, if at all, influenced the germ-cells," and are to be considered as "acquired (somatic) characteristics," and "pre-eminently the creations of environment." As an illustration we are told—what most would explain by a totally different reason—that if "infants of a Catholic family which is descended from a long line of Catholic ancestors were to be placed and retained in a purely Mohammedan environment, heredity would carry no Christian customs, morals or religion into that environment," but that Mohammedanism would replace and prevail. We think this is a wider question than can be decided by the influence of germ-cells, and does not appertain to *organic* evolution at all.

The chapter on "Natural Selection" is a good *résumé* of the most advanced theories on the question; that on the evolution of Man required more space to bring it sufficiently in line with recent anthropology; but in all the discussions on the different phases of organic evolution many new or little-known facts are introduced.

This small volume is always suggestive, and when we cannot see our way to agree with its writer, we are at least stimulated to fresh fields of thought. In the list of "Works of Reference" which forms "Section VIII." we have been unable to find among the names of authors that of Ernst Haeckel.

Fifteen Years' Sport and Life in the Hunting Grounds of Western America and British Columbia. By W. A. BAILLIE-GROHMAN. Horace Cox.

THIS is a book primarily for the sportsman who has the strength, and possesses the opportunities, to visit the wildest parts of a now unfashionable continent, for Africa and not North America is at present considered the hunter's paradise. And yet this need not be a rule made too absolute, for we read:—"There are even to-day countries, the size of small kingdoms, in British

North America, into which no hunting party has ever penetrated, and where the frying pan's capacity of a few isolated prospectors has, so far, measured the destruction of game; countries where Moose, Caribou, and Antelope-Goat are still unfamiliar with the sight of white-skinned human beings."

The zoologist will find much worth reading and remembering in the chapters—amongst others—devoted to the Wapiti and the Antelope-Goat (*Haplocerus montanus*), though he will wish there were even more facts relating to the life-histories of these animals, and less discussion of record heads and antlers, which, after all, pertain more to the fame of the trophies of a hall than to the real treasure of a zoological museum. In fact, these monster heads seem to provoke too much emulation and apparent heart-burnings among their fortunate possessors, and the zoological reader may well skip the results of the measuring-tape and enjoy and profit by the beautiful illustrations of the heads themselves.

This book cannot be pronounced a genial production: there is too much criticism; scarcely any authority quoted seems free from error of commission or omission, so that we frequently—too frequently—are transported from the beauties of nature to the more confined area of the forum for the purpose of critical discussion.

The chapter devoted to "The Salmon of the Pacific Slope" contains much information apart from the correction of Dr. Günther. The reproduction of the instantaneous photograph of a Salmon leaping an eighteen-feet-high fall in Labrador is a charming contribution to art and zoology.

British Dragonflies (Odonata). By W. J. LUCAS, B.A., F.E.S.,
L. Upcott Gill.

MR. LUCAS has found the subject for a much-needed book in British Entomology. The Dragonflies were certainly collected by some, and known to a few, but to the general British zoologist they were little understood, identified with difficulty, and hence—apart from specialists—received scant attention. Their life-histories can only be unravelled by skill and patience; for the

breeding of Odonata is attended with more difficulty than that of Lepidoptera, and a volume like the present is an incentive to that task, and is also provocative to observation.

“Of recent Dragonflies Linnæus knew only fifty-six species in the middle of last century, Baron de Selys Longchamps gave 1344 as the total in 1871. In 1890 Kirby could bring the list up to 1800, and thought that the number might be quadrupled, if only the group were more thoroughly worked. The total for Europe is just over a hundred, while in Britain there are forty.” Of these last Mr. Lucas considers two as being synonymic, and this brings the number—including occasional visitors—to thirty-nine.

Many modern authorities now either treat the Odonata as a distinct order, or as a section of the Orthoptera; Mr. Lucas decides still to regard the Dragonflies as part of the Neuroptera. Without being a specialist in the study of these insects, he seems to have read up the literature with trouble and care, and to have consulted the records of captures sufficiently to give a good account of the distribution of each species in Britain. The illustrations leave little to be desired; the sexes of each species are portrayed in coloured plates, while many good figures ornament the text. In a purely entomological publication—which this Journal is not—many points might be discussed which are dealt with in the volume; it sufficeth us to regard it as a contribution to British Zoology which was wanted, which will be welcomed by most naturalists, and which has been produced in a handsome and thorough manner.

Recent Foraminifera: a Descriptive Catalogue of Specimens dredged by the U.S. Fish Com. Steamer 'Albatross.' By JAMES N. FLINT, M.D., U.S.N. Washington; Government Printing Office.

THIS publication is the zoological strength of the Report of the U.S. National Museum for the year ending June 30th, 1897, and which has just been printed and received.

We read that material from above one hundred and twenty-five stations has been carefully studied, and specimens from more than a hundred localities have been preserved and identified. Of these localities, fifty-eight are in the North Atlantic

Ocean, twenty-one in the Gulf of Mexico, seven in the Caribbean Sea, one in the South Pacific, and five in the North Pacific. The depths at these stations vary from 7 to 2512 fathoms. The classification followed is that of Mr. Brady in the 'Challenger' reports.

Zoologists seem sometimes to forget these primitive forms of animal life, and yet how little we know of their life-histories! "How the function of nutrition is accomplished, and the nature and condition of the organic material used as food by these minute animals is not yet determined." "Of the process of reproduction little is known beyond the fact of multiplication by gemmation and fission." The Foraminifera are therefore still in search of their interpreter. Their iconographer has not been undiscoverable. This most interesting memoir is illustrated by no fewer than eighty beautiful plates.

Most English readers will remember these animals as having formed the pabulum of Huxley's classical lecture "On a Piece of Chalk."

The Mycetozoa, and some Questions which they Suggest. By the Right Hon. Sir EDWARD FRY, D.C.L., &c. and AGNES FRY. 'Knowledge' Office.

THIS is a reprint from the columns of our contemporary 'Knowledge,' and is devoted to the consideration of a form of life whose position in classification is still *sub judice*, being claimed alike by botanists and zoologists. We recently ('Zoologist,' 1899, p. 524) drew attention to a volume on the same subject by Prof. Macbride. It is owing to these diverse claims that the subject becomes matter for our pages. The present authors, in discussing the affinities of the Mycetozoa = Myxomycetes of Macbride, and the question as to whether they belong to the vegetable or animal domains—which, after all, reduced to their primitive conditions, are practically convertible terms—pronounce a qualified decision. "It almost seems as if the Myxies were a vagrant tribe that wander sometimes on the one side, and sometimes on the other side of the border-line—like nomads wandering across the frontier of two settled and adjoining states, to neither of which they belong. They would seem to begin life as animals, and end it as vegetables."

It is in these difficulties to enclose nature in the different "kraals" of systematic natural history that the true biological evidence for organic evolution is to be found.

Biologia Animale (Zoologia Generale e Speciale) per Naturalisti, Medici, e Veterinari. Del Dott. GEDEONE COLLAMARINI.
Milan: Ulrico Hoepli.

THIS is one of the latest publications in the 'Manuali Hoepli,' and, as will be understood by the title, is an attempt in a small volume to condense the information which is distributed over a very wide field. Thus, in the introduction, we find the subject of Zoological Nomenclature, with a considerable number of rules or axioms respecting the Law of Priority. A chapter is devoted to Anthropology, another to Medical Zoology, and a third to Agricultural Zoology. These, in addition to sections on Anatomy, Embryology, Physiology, and Systematic Zoology, comprised in a small volume of 426 pages, sufficiently proclaim that the subject is necessarily treated in a most restricted sense. As the book is written in the Italian language, it is unlikely to be much in vogue among English readers, but is worthy of record as showing a widening of horizon as to *special subjects*, though distinctly peculiar in ignoring the claims of Palæontology to be included in its purview. It is probably intended for the use of schools.

Faune de France: Les Oiseaux. Par A. ACLOQUE. Paris:
Baillièrre et Fils.

THE last publication of this series—of which we have already noticed some other volumes—is devoted to Birds, and is written on precisely the same method as pursued in the treatment of other animals. The facilities of a synoptical classification and a profuse illustration are again presented to the student; and if the first does not always secure its object—as few of these attempts do—and the second are somewhat coarse, we have at least a manual which is inexpensive, and one which will no doubt prove helpful to many a young ornithologist. Over six hundred figures are given in the comparatively short space of 252 pages.

EDITORIAL GLEANINGS.

IN this month's 'Avicultural Magazine' will be found the first part of "A Naturalist's Notes in Ecuador," by Mr. Walter Goodfellow, who, with Mr. Claud Hamilton, has spent two years in that interesting region. We extract the following remarks anent Humming-birds, which, the writer remarks, would be generally associated with sunny flower-bedecked glades:—"It is true that numbers of them are found (and some beautiful ones too) in the hot forests of Tropical America, but they are much more numerous, and far more beautiful in the higher Andes; some of the loveliest of all being found at altitudes of between eight and thirteen thousand feet; whilst the little Black Hummer with a sapphire throat, known as Jameson's Humming-bird, I have seen, when camping out on the volcano of Pichincha, Condor-shooting, flying past our tent in a heavy snowstorm, with its mournful *twit twit*, at an altitude of over fourteen thousand feet. I have noticed others of the same family sitting on the telegraph-wires (apparently a favourite post of theirs) along the dusty roads in the central highlands, in the most prosaic manner possible, watching, perchance, for passing insects, darting into the air to seize their prey on the wing, and always returning to the same spot. It seems to be almost a general rule in Ecuador that Humming-birds which make their home in the dense forests lack almost entirely the beautiful iridescence peculiar to most members of the family. But, if they lack colour, many of them have peculiarities of form—as, for instance, the wonderful curved bill of the *Eutoxeres aquila*, the saw-bill of the *Androdon aquatorialis*, and the elongated tail-feathers of the *Phaethornis symmatophorus*. In showing Humming-birds' skins to friends at home one always hears the remark, 'How lovely they must look flying about!' It is true they do look pretty with their graceful poses, but their wonderful colouring is generally then almost entirely invisible, and certainly not seen to proper advantage, many species looking much the same as one another in freedom, but vastly different when held in the hand and turned to the right light."

IN the 'American Naturalist' for December last there has been published the account of a most instructive observation by Florence Wells

Slater on the egg-carrying habit of a water-hemipteron. It is a well-known fact that certain bugs of the family *Belostomatidæ* carry their eggs on their back until they are hatched. This has been frequently observed in the case of *Zaitha fluminea*, common in the Atlantic States. It has been taken for granted by all who have described this habit that it is the female that carries the eggs, and it has been authoritatively stated that she places them on her back by the aid of her ovipositor. Miss Slater, by dissection, has found that all the egg-carrying specimens belonged to the male sex, and from observations made by the aid of an aquarium found that the male was frequently a most unwilling bearer of these burdens of reproduction. Her observations "indicate that the female is obliged to capture the male in order to deposit the eggs. Upon visiting the aquarium one afternoon a male was found to have a few eggs upon the caudal end of the wings. There was a marked difference in the colour of these, those nearest the head being yellow, while those nearest the caudal end were dark grey. The small number of the eggs indicated that the female had been interrupted in her egg-laying, and the difference in colour of the eggs that the process must be a slow one. For five hours I watched a silent unremitting struggle between the male and the female. Her desire was evidently to capture him uninjured. She crept quietly to within a few inches of him, and there remained immovable for half an hour. Suddenly she sprang towards him; but he was on the look-out, and fought so vigorously that she was obliged to retreat. After this repulse she swam about carelessly for a time, as if searching for food was her only thought. But in ten or fifteen minutes she was back in her first position in front of him. Again there was the attack, and again the repulse. The same tactics were continued until midnight, when, despairing of her success, I left them. At six o'clock the next morning the entire abdomen of the male and half of the thorax were covered with eggs. Those nearest the head were quite yellow, showing that the struggle had just ended."

THE Marquis of Lorne has imported some Wild Turkeys from Canada, and turned them loose in Argyllshire. They are doing well, and Turkey-shooting may become an attraction of the Highlands.—*Sun*.

THE Secretary of State for the Home Department has made the following Order under the Wild Birds Protection Acts, 1880–1896, for the Protection of Wild Birds and Wild Birds' Eggs within the County of London.

THE WILD BIRDS PROTECTION (COUNTY OF LONDON) ORDER,
JANUARY, 1900. Dated Jan. 10th, 1900.

Close Time Extended.

II. The time during which the killing and taking of wild birds is prohibited by the Act of 1880 shall be extended, so far as concerns the county of London, so as to be from the 1st day of February to the 31st day of August in each year.

Certain Birds protected during the whole of the Year.

III. During the period from the 1st day of September in any year to the 31st day of January following, both days inclusive, the taking or killing of any of the following kinds of wild birds is prohibited throughout the county of London :—

Bearded Tit (Reedling or Reed Pheasant), Blackbird, Blackcap, Blue Tit, Buntings, Buzzard, Chaffinch, Chiffchaff, Cole Tit, Coot, Cuckoo, Flycatchers, Garden Warbler, Golden-crested Wren, Goldfinch, Great Tit, Gulls, Hedge-Sparrow (or Dunnock), Hobby, Honey Buzzard, Kestrel, Kingfisher, Landrail (or Corncrake), Lark, Lesser Whitethroat, Linnet, Long-tailed Tit, Magpie, Martins, Merlin, Nightingale, Nightjar, Nut-hatch, Osprey, Owls, Redstart, Reed Warbler, Robin (or Redbreast), Sedge Warbler, Shrikes, Starling, Stonechat, Swallow, Swift, Thrushes, Wagtails, Wheatear, Whinchat, Whitethroat, Willow Warbler, Woodpeckers, Wood Warbler, Wren, Wryneck (Cuckoo's-mate or Snake-bird).

All Birds protected on Sundays in certain Parishes.

IV. During the period from the 1st day of September in any year to the 31st day of January following, both days inclusive, the taking or killing of wild birds on Sundays is prohibited in the following parishes in the county of London. [Here follows list of parishes.]

Additions to the Schedule of the Act of 1880.

V. The Wild Birds Protection Act, 1880, shall apply within the county of London to the Bearded Tit (Reedling or Reed Pheasant), Buzzard, Chaffinch, Hobby, Honey Buzzard, Kestrel, Magpie, Martins, Merlin, Osprey, Shrikes, Swallow, Swift, and Wryneck (Cuckoo's-mate or Snake-bird), as if those species were included in the schedule to the said Act.

EGGS.

Certain Eggs protected throughout the County.

VI. The taking or destroying of the eggs of the following wild birds is prohibited throughout the county of London for a period of five years from the date of this Order :—

Bearded Tit (Reedling or Reed Pheasant), Blackbird, Blackcap, Blue Tit, Buntings, Buzzard, Chiffchaff, Cole Tit, Coot, Cuckoo, Flycatchers,

Garden Warbler, Golden-crested Wren, Goldfinch, Great Tit, Hawfinch, Hedge-Sparrow (or Dunnock), Hobby, Honey Buzzard, Kestrel, Kingfisher, Landrail (or Corncrake), Lark, Lesser Whitethroat, Linnet, Long-tailed Tit, Magpie, Martins, Merlin, Nightingale, Nightjar, Nuthatch, Osprey, Owls, Plover (Lapwing or Peewit), Redstart, Reed Warbler, Robin (or Redbreast), Sedge Warbler, Shrikes, Starling, Stonechat, Swallow, Swift, Thrushes, Wagtails, Wheatear, Whinchat, Whitethroat, Willow Warbler, Woodpecker, Wood Warbler, Wren, Wryneck (Cuckoo's-mate or Snake-bird).

Any person infringing this Order is liable on conviction to penalties not exceeding £1 for every bird or egg taken or destroyed.

Few hard-and-fast characters used in zoological classification attain to the legal definitions of the Medes and Persians. Thus we have "Salamanders with and without Lungs," the subject of a valuable communication by Dr. Lönnberg in the 'Zoologischer Anzeiger' of December last (No. 604, p. 545). It had been proved by Wilder, Camerano, and Moore, as well as by the writer of the article, that many Salamanders are normally deprived of lungs. To these Dr. Lönnberg adds two more species, and gives a list of those known to be without lungs, or to have these organs reduced. There are also a number of species which possess well although differently developed lungs. These Dr. Lönnberg proposes to divide into two classes, *viz.* (1) such in which the lungs extend to the groin, and are about 60 per cent. of the length of head and body, and (2) such in which the lungs extend only about half-way between axilla and groin, and measure only from 45 to 38 per cent. of the length of the head and body. "Camerano has rightly pointed out the importance of the lungs as an hydrostatic organ, and it seems quite probable that the great length of the lungs in many forms is an adaptation to aquatic life. But the lungless Salamanders are not necessarily obliged to lead a terrestrial life, even if many of them do so; on the contrary, some of them are very positively aquatic in their habits. In the latter case, however, they do not swim suspended in the middle of the water, as the species of *Molge*, but crawl or wriggle at the bottom."





West Newman lith.

Falco cinereus var. *montana* Dress.